

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
19 January 2006 (19.01.2006)

PCT

(10) International Publication Number  
**WO 2006/006963 A2**

(51) International Patent Classification<sup>7</sup>: **A61M 11/00**,  
B05B 17/06

(74) Agent: **HAENDLER, Jeffrey, B.**; Klarquist Sparkman,  
LLP, One World Trade Center, Suite 1600, 121 SW Salmon  
Street, Portland, OR 97204 (US).

(21) International Application Number:  
PCT/US2005/011086

(81) Designated States (*unless otherwise indicated, for every  
kind of national protection available*): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY,  
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU,  
ZA, ZM, ZW.

(22) International Filing Date: 1 April 2005 (01.04.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/559,318 2 April 2004 (02.04.2004) US

(71) Applicants (*for all designated States except US*): **THE  
GOVERNMENT OF THE UNITED STATES OF  
AMERICA** as represented by **THE SECRETARY OF  
THE DEPARTMENT OF HEALTH AND HUMAN  
SERVICES, CENTERS FOR DISEASE CONTROL  
AND PREVENTION** [US/US]; Technology Transfer  
Office, 4770 Buford Hwy (K79), Atlanta, GA 30341 (US).  
**CREARE INCORPORATED** [US/US]; 16 Great Hollow  
Road, Hanover, NH 03755 (US).

(84) Designated States (*unless otherwise indicated, for every  
kind of regional protection available*): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,  
SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,  
GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **PAPANIA, Mark, J.**  
[US/US]; 3649 Wentworth Lane, Lilburn, GA 30047 (US).  
**BARRY, James, J.** [US/US]; 5 Ridge Road, Hanover, NH  
03755 (US). **BAGLEY, Mark, C.** [US/US]; 505 Turn-  
pike Road, Grafton, NH 03240 (US). **ELKOUH, Nabil,  
A.** [US/US]; 28 Chosen Vale Lane, Enfield, NH 03748  
(US). **KNAUS, Darin** [US/US]; 55 Douglas Ridge, Nor-  
wich, VT 05055 (US). **TRABKA, Robert** [US/US]; 155  
Gilman Pond Road, Newport, NH 03773 (US).

**Declaration under Rule 4.17:**

— *of inventorship (Rule 4.17(iv)) for US only*

**Published:**

— *without international search report and to be republished  
upon receipt of that report*

*For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.*

(54) Title: AEROSOL DELIVERY SYSTEMS AND METHODS

(57) Abstract: Methods and systems for aerosol delivery of agents to a patient are described herein. The present system can be used to administer various types of agents, such as a vaccine or other types of pharmaceutical substances. Certain embodiments of the present system utilize an actuator coupled to a disposable aerosolizing element that aerosolizes an agent for delivery to a patient when acted upon by the actuator. The aerosolizing element prevents the agent from contacting the actuator and other non-disposable components of the system so that little or no cleaning or maintenance is required. The present system also can include an aerosolization rate monitor that monitors the rate at which an agent is being aerosolized and provides feedback to the user to ensure that the proper dose is being administered.



WO 2006/006963 A2